

Toxicity Test Report

Date: August 14, 1997
From: William Thoeny, SBI Work Assignment Leader
To: Jim Lazorchak, EPA Work Assignment Manager
Subject: WR032797.01, Clear Creek Superfund Toxicity Sample Testing

Introduction

Water column and sediment samples were received from USEPA Region VIII field personnel for the Clear Creek Superfund Site, located in central Colorado, on April 17 and 18, 1997. The samples were shipped on ice, within coolers. A total of 37 water and 24 sediment samples were received, all in good condition, with all seals intact. Routine chemistries were determined for each water sample on arrival and are contained in Table 1.

Sediment samples were logged in at the time of arrival, temperatures were recorded, and samples were stored under refrigeration for later testing. These tests were conducted in two sets, one starting 5-9-97 and the second starting 5-23-97.

Methods

All water column tests were 48-hour, static-renewal, acute toxicity tests, conducted at 20°C. The control and dilution water was moderately hard reconstituted water (MHRW). Tests were conducted using *Ceriodaphnia dubia*, a cladoceran, and *Pimephales promelas*, the fathead minnow. An outline of the methods used for testing with both species are contained in Tables 2 and 3, respectively. Tests included both profile tests, (100% sample only), and definitive tests, (diluted samples). Any test that showed excessive mortality in the lowest test concentration was restarted using a lower dilution series.

The LC50 values for the definitive tests with both species were determined using the USEPA version of Trimmed Spearman-Karber. All *C. dubia* profile data were analyzed using a *t* test, unless the data failed the normality test. If this occurred, a Mann-Whitney Rank Sum Test was then used to analyze the *C. dubia* data. Since the *P. promelas* test uses only two replicate test chambers, no analysis is performed on the profile test data.

The sediment toxicity tests were 10 day, static-renewal tests, conducted at 23°C, using 7-day old *Hyalella azteca*. The overlying water was reformulated moderately hard reconstituted water. An outline for this test method is contained in Table 4. The data from these tests were analyzed using either a *t* test, if the data meet the normality assumptions, or a Mann-Whitney Rank Sum Test if the data failed to meet the normality assumptions. The p value for both was 0.05.

Results and Discussion

A total of 37 water samples were received and tested with *C. dubia* and *P. promelas*. The *C. dubia* tests involved 14 profile tests, (including five that were restarted as either definitive or modified definitive tests), and 28 definitive or modified definitive tests, including the restarted tests. Eighteen of the definitive or modified definitive tests were either restarted or had lower concentrations added. Only one *C. dubia* test, with sample SW-46, was not completely successful. This test used a dilution series of 1.56% to 25% and showed excessive mortality (55%) in the low concentration, so the LC50 value is reported as <1.56%.

The *P. promelas* tests involved 14 profile tests, all of which were successful, and 23 definitive or modified definitive tests. Only two tests with *P. promelas*, SW-27 and SW-27A, needed to be restarted due to excess mortality. All other tests with *P. promelas* were successfully completed.

Of the 37 samples tested for toxicity, 20 exhibited a measurable level of toxicity to *C. dubia* and 15 exhibited some level of toxicity to *P. promelas*. Samples that were toxic are indicated in the species survival tables (Tables 5, 6, 7 and 8) by either an LC50 value for definitive or modified definitive samples, or by a # sign for profile samples. The stream samples showed more toxicity than initially anticipated, resulting in the need to restart five of the *C. dubia* profile tests. In addition, 13 of the *C. dubia* definitive or modified definitive tests needed to be conducted using either high concentrations considerably lower than initially anticipated by USEPA Region VIII Biologists, or by adding lower test concentrations to some modified definitives. In summary, the levels of toxicity found across this watershed were still much higher than anticipated, based on previous work conducted by the Region VIII Office and USEPA NERL. The *C. dubia* profile test data is contained in Table 5 and the definitive test data is contained in Table 6. The *P. promelas* profile test data is contained in Table 7 and the definitive test data is contained in Table 8. Initial and final routine chemistries are contained in Tables 11, 12 and 13, respectively.

Reference toxicant tests were also conducted on the same batches of test animals. The Potassium Chloride (KCl) LC50 for the 48-hour *C. dubia* reference toxicant test was 615.57 mg/l, within the control limits of 260 to 740 mg/l. The KCl LC50 for the 48 hour *P. promelas* reference toxicant test was 681.78 mg/l, within the control limits of 620 to 1280 mg/l.

Data from the *H. azteca* sediment toxicity tests are contained in Tables 9 and 10. The chemistry data for both series of tests are contained in Tables 14 and 15. These samples were conducted in two series, due to the number of samples to test. The first set (Table 9) consisted of 11 sediment samples collected from riverine stations, main stem Clear Creek, and one tributary, SW-08A, Chicago Creek. The second set of tests consisted of 12 samples collected along either tributaries of Clear Creek or from discharges into Clear Creek or its tributaries. In the first series of tests, begun 5-9-97, all but one station, SW-26, had *H. azteca* survival that was statistically different from the *H. azteca* control survival. It should be noted the survival in SW-26 was 55%, a survival level not normally associated with non-impacted sites. This sample probably does not test as being

statistically different due to the large amount of variance (C.V.=42.6%) associated with this sample. The p value for the t-test conducted on SW-26 was 0.0591, a value only slightly higher than the 0.05 level used to determine statistical significance. The reason for high levels of mortality in these samples, including those upstream of the suspected impact zones, is unknown. The dissolved oxygen levels for all the samples, including the control sample, are lower than expected, mid 2.0's to mid 4.0's. The D. O. level for the control sediment was 4.0 mg/l, which is also lower than expected and the control survival was 85%. The survival for all 12 sediments in test series 2 (Table 10) (5-23-97) was overall much higher. Four of the 12 sediments tested had survival statistically different from that of the control sample. One of these, SW-40, had survival of 73.75%, a level not necessarily associated with an impacted site. This time, the low variance associated with this sample (C.V. = 3.4%) probably had much to do with it testing as statistically different from the control sample. The remaining three "impacted" sediments all had survival less than 70%. In addition, the growth of the animals in the SW-36 sediment was determined to be statistically different from that of the control. In summary, all but one of the 12 sediments tested in the first test series (5-9-97) had survival that was statistically different from that in the control. Four of the 12 sediments tested in test series two (5-23-97) had survival statistically different from that in the control. In addition, one of the sediments tested 5-23-97 had survival statistically different from that in the control.

TABLE 1. Arrival chemistries from Clear Creek water samples .

Sample	Temp (°C)	pH (S.U.)	Alkal. (ppm)	Hard. (ppm)	Cond. (µS/cm)	D.O. (ppm)
SW-06	5.0	2.90	N/A	N/A	3050	5.7
SW-05	5.2	7.11	40	99	285	10.2
SW-01	2.8	7.47	43	98	264	11.0
SW-02	5.4	7.44	39	104	308	10.6
SW-04A	4.0	7.23	43	100	288	11.0
SW-03	2.9	7.25	44	96	296	10.8
SW-34	2.8	7.92	132	140	1019	9.6
SW-29	3.5	7.46	45	82	374	10.3
SW-17I	3.3	3.35	N/A	462	999	10.0
SW-17O	2.5	3.48	N/A	1500+	1089	9.5
SW-35	3.5	6.99	28	66	168	9.8
SW-21	3.0	7.46	54	88	287	10.4
SW-15	3.1	7.22	25	44	100	10.3
SW-13	3.4	7.30	46	86	257	10.2
SW-12	3.1	2.80	N/A	1840+	3000	9.6
SW-08A	2.0	7.04	27	44	88	10.6
SW-14	2.3	5.10	2	114	249	10.8
SW-07A	3.5	7.17	47	86	250	10.5
SW-59	3.0	7.47	46	67	122	11.2
SW-39	2.9	6.23	10	180	465	10.0
SW-40	2.8	6.32	10	176	483	10.1
SW-27A	3.7	7.27	328	534	859	6.9
SW-44	2.5	5.63	20	310	1864	9.5

SW-46	3.2	5.16	6	N/A	1960	6.5
SW-47	2.7	7.34	246	114	234	10.0

TABLE 1. Arrival chemistries (cont'd)

Sample	Temp (°C)	pH (S.U.)	Alkal. (ppm)	Hard. (ppm)	Cond. (µS/cm)	D.O. (ppm)
SW-27	3.4	7.43	118	500	836	8.4
SW-43	3.1	6.20	13	150	500	9.9
SW-41	3.8	5.82	4	770	1379	8.3
SW-36	4.1	6.91	12	150	376	9.4
SW-38	3.1	6.90	14	208	455	10.0
SW-26	4.7	7.34	48	98	265	9.4
SW-48	2.7	7.08	24	64	166	9.4
SW-28	4.0	7.43	42	94	317	9.3
SW-25	4.1	7.47	50	72	124	9.2
SW-23	3.1	7.56	50	88	223	9.5
SW-49B	2.5	7.13	22	32	72	8.8
SW-25A	3.2	7.42	46	62	116	9.0

TABLE 2. Standard Operating Procedures for *Ceriodaphnia dubia* acute toxicity tests for Superfund samples.

<u>TEST CRITERIA</u>	<u>SPECIFICATIONS</u>
Test Type	Static-renewal
Test Duration	48 hr
Temperature	20°C ± 1°C
Photoperiod	16 hr light/8 hr dark
Test Chamber Size	30 ml (plastic cups)
Test Solution Volume	20 ml
Renewal of Test solution	Daily
Age of Test Organisms	Less than 24-hr-old
Number of Organisms/ per test chamber	5
Number of Replicate Chambers/Conc.	4
Number of Organisms/ Concentration	20
Feeding	none, fed while holding prior to test setup
Dilution Water	Moderately Hard Reconstituted Water
Endpoint	Mortality, LC50
Test Acceptability	≥ 90% survival in the controls

TABLE 3. Standard Operating Procedures for *Pimephales promelas* acute toxicity tests for Superfund samples.

<u>TEST CRITERIA</u>	<u>SPECIFICATIONS</u>
Test Type	Static-renewal
Test Duration	48 hr
Temperature	20°C ± 1°C
Photoperiod	16 hr light/8 hr dark
Test Chamber Size	175 ml (plastic cups)
Test Solution Volume	150 ml
Renewal of Test-solution	Daily
Age of Test Organisms	3 to 7 days ± 24 hr age range
Number of Organisms/ per test chamber	10
Number of Replicate-Chambers/Conc.	2
Number of Organisms/ Concentration	20
Feeding testing. Do not feed during the test.	Feed newly hatched brine shrimp prior to testing.
Dilution Water	Moderately Hard Reconstituted Water
Endpoint	Mortality, LC50
Test Acceptability	≥90% survival in the controls

TABLE 4. Standard Operating Procedures for *Hyalella azteca* acute toxicity tests for Superfund samples.

<u>TEST CRITERIA</u>	<u>SPECIFICATIONS</u>
Test Type	Static-renewal
Test Duration	10 days
Temperature	23 °C ± 1 °C
Photoperiod	16 hr light/8 hr dark
Test Chamber Size	200 ml
Sediment Volume	75 ml
Overlying Water Volume	125 ml
Renewal of Test solution	daily
Age of Test Organisms	7-days old, 24 hour age range
Number of Organisms/ per test chamber	20
Number of Replicate Chambers/Conc.	4
Number of Organisms/ Concentration	80
Feeding	2 ml algae/alfalfa
Dilution Water	Reformulated Moderately Hard Reconstituted Water
Control Sediment	Potting Soil
Endpoint	Mortality, difference from control Growth, difference from control
Test Acceptability	> 80% survival in the controls

TABLE 5. Toxicity results from *Ceriodaphnia dubia* profile tests with Clear Creek water samples

Sample	Survival	p value	
cont 4/10	18/20	N/A	p-values based on comparison of sample survival to control survival using a t-test.
SW-01	0/20*	N/A	
SW-02	0/20*	N/A	
SW-08A	17/20	0.686@	
SW-13	0/20*	N/A	
SW-15	16/20	0.486@	
cont 4/10	18/20	N/A	@ t-test failed normality test, comparison made using Mann-Whitney Rank Sum Test.
SW-21	0/20*	N/A	
SW-29	14/20	0.315	
SW-34	17/20	0.670	
SW-35	16/20	0.686@	
cont 4/11	19/20	N/A	# Samples determined to be statistically different from the control.
SW-49B	15/20	0.114	
SW-23	3/20*	N/A	
SW-25A	13/20	0.095	
SW-25	10/20#	0.043	
cont 4/11	20/20	N/A	* Samples that were restarted as definitives due to excessive mortality in the 100% sample.
SW-28	20/20	1	
			N/A indicates t-test's were not conducted on these samples.

TABLE 6 . Toxicity results from *C. dubia* definitive tests with Clear Creek water samples.

Sample	Conc.(%)	Survival	LC50(%)	Limits
SW-01	cont	19/20	17.68	16.23-19.25
	1.56	18/20		
	3.125	18/20		
	6.25	17/20		
	12.5	17/20		
	25	2/20		
SW-02	cont	19/20	14.41	11.49-18.07
	6.25	16/20		
	12.5	13/20		
	25	1/20		
SW-03	cont	18/20	15.85	12.81-19.60
	3.125	19/20		
	6.25	20/20		
	12.5	11/20		
	25	3/20		
	50	1/20		
	100	0/20		
SW-04A	Cont	19/20	9.99	8.58-11.62
	3.125	18/20		
	6.25	18/20		
	12.5	4/20		
	25	1/20		
	50	0/20		

TABLE 6 . Toxicity results from *C. dubia* definitive tests (cont'd).

Sample	Conc.(%)	Survival	LC50(%)	Limits
SW-05	cont	20/20	10.15	8.66-11.91
	3.125	20/20		
	6.25	19/20		
	12.5	3/20		
	25	2/20		
	50	0/20		
SW-07A	cont	20/20	33.37	28.68-38.83
	25	15/20		
	50	3/20		
	100	1/20		
SW-13	cont	19/20	58.92	51.40-67.54
	25	19/20		
	50	14/20		
	100	0/20		
SW-21	cont	19/20	70.71	N/A
	25	20/20		
	50	20/20		
	100	0/20		
SW-23	cont	19/20	64.41	50.41-82.30
	12.5	18/20		
	25	14/20		
	50	3/20		

TABLE 6 . Toxicity results from *C. dubia* definitive tests (cont'd).

Sample	Conc.(%)	Survival	LC50(%)	Limits
SW-26	cont	19/20	29.39	22.11-39.06
	6.25	18/20		
	12.5	17/20		
	25	7/20		
	50	8/20		
	100	2/20		
SW-06	cont	18/20	0.13	0.10-0.19
	0.078	13/20		
	0.156	8/20		
	0.312	2/20		
	0.625	1/20		
	1.25	0/20		
SW-12	cont	19/20	0.16	0.11-0.22
	0.078	15/20		
	0.156	9/20		
	0.312	5/20		
	0.625	0/20		
	0.156	0/20		
SW-14	cont	19/20	4.17	3.97-4.38
	0.375	20/20		
	0.75	19/20		
	1.5	20/20		
	3.0	19/20		

6.0	0/20
-----	------

TABLE 6 . Toxicity results from *C. dubia* definitive tests (cont'd).

Sample	Conc.(%)	Survival	LC50(%)	Limits
SW-17O	cont	20/20	0.46	0.38-0.54
	0.187	13/20		
	0.375	14/20		
	0.75	1/20		
	1.5	0/20		
	3	0/20		
SW-17I	cont	18/20	0.96	0.83-1.11
	0.187	19/20		
	0.375	19/20		
	0.75	15/20		
	1.5	1/20		
	3	0/20		
SW-27A	cont	20/20	0.22	0.17-0.29
	0.094	17/20		
	0.187	12/20		
	0.375	5/20		
	0.75	0/20		
	1.5	0/20		
SW-27	cont	20/20	0.24	0.19-0.30
	0.094	19/20		
	0.187	12/20		
	0.375	5/20		

0.75	1/20
1.5	0/20

TABLE 6 . Toxicity results from *C. dubia* definitive tests (cont'd).

Sample	Conc.	Survival	LC50(%)	Limits
SW-59	cont	20/20	78.07	68.69-88.73
	25	20/20		
	50	19/20		
	100	5/20		
SW-36	cont	19/20	4.48	4.20-4.79
	1.56	18/20		
	3.125	18/20		
	6.25	0/20		
	12.5	3/20		
	25	2/20		
SW-39	cont	18/20	7.63	4.75-12.27
	1.56	14/20		
	3.125	11/20		
	6.25	11/20		
	12.5	9/20		
	25	0/20		
SW-40	cont	18/20	24.87	9.56-64.68
	6.25	11/20		
	12.5	9/20		
	25	12/20		
	50	2/20		

100	0/20
-----	------

TABLE 6 . Toxicity results from *C. dubia* definitive tests (cont'd).

Sample	Conc.	Survival	LC50(%)	Limits
SW-43	cont	19/20	3.05	1.95-4.79
	0.78	15/20		
	1.56	13/20		
	3.125	8/20		
	6.25	8/20		
	12.5	1/20		
SW-48	cont	18/20	70.71	26.53-188.4
	25	17/20		
	50	10/20		
	100	8/29		
SW-38	cont	18/20	7.43	No Limits
	6.25	12/20		
	12.5	0/20		
	25	0/20		
	50	0/20		
	100	0/20		
SW-41	cont	19/20	0.75	0.61-0.93
	0.375	19/20		
	0.75	7/20		
	1.5	3/20		

3	1/20
6	1/20

TABLE 6 . Toxicity results from *C. dubia* definitive tests (cont'd).

Sample	Conc.	Survival	LC50(%)	Limits
SW-44	cont	19/20	0.89	0.70-1.12
	0.187	20/20		
	0.375	15/20		
	0.75	14/20		
	1.5	5/20		
	3	0/20		
SW-46	cont	20/20	<1.56	N/A
	1.56	9/20		
	3.125	6/20		
	6.25	5/20		
	12.5	3/20		
	25	0/20		
SW-47	cont	20/20	13.80	6.40-29.74
	6.25	10/20		
	12.5	11/20		
	25	7/20		
	50	1/20		
	100	0/20		
KCl	cont	20/20	615.6 mg/l	543.8-696.8

(mg/l)	62.5	20/20
	125	20/20
	250	20/20
	500	16/20
	1000	0/20

TABLE 7 . Toxicity results from *Pimephales promelas* profile tests.

Sample	Survival
cont 4/10	19/20
SW-01	19/20
SW-02	19/20
SW-08A	19/20
SW-13	20/20
SW-15	19/20
cont 4/10	19/20
SW-21	20/20
SW-29	20/20
SW-34	19/20
SW-35	19/20
cont 4/11	20/20
SW-49B	20/20
SW-23	19/20
SW-25A	19/20
SW-25	20/20
SW-28	20/20

TABLE 8 . Toxicity results from *Pimephales promelas* definitive tests.

Sample	Conc.	Survival	LC50(%)	Limits
SW-03	cont	18/20	>100	N/A
	25	17/20		
	50	19/20		
	100	16/20		
SW-04A	cont	19/20	>100	N/A
	25	19/20		
	50	19/20		
	100	14/20		
SW-05	cont	18/20	>100	N/A
	25	17/20		
	50	16/20		
	100	16/20		
SW-07A	cont	20/20	>100	N/A
	25	19/20		
	50	17/20		
	100	20/20		
SW-26	cont	20/20	>100	N/A

25	19/20
50	15/20
100	14/20

TABLE 8 . Toxicity results from *Pimephales promelas* definitive tests (cont'd).

Sample	Conc.	Survival	LC50(%)	Limits
SW-06	cont	19/20	2.18	1.61-2.96
	0.312	20/20		
	0.625	20/20		
	1.25	13/20		
	2.5	10/20		
	5	3/20		
SW-12	cont	20/20	7.44	5.43-10.18
	1.25	18/20		
	2.5	16/20		
	5	11/20		
	10	13/20		
	20	0/20		
SW-14	cont	19/20	24.55	19.95-30.21
	6.25	19/20		
	12.5	15/20		
	25	12/20		

50	1/20
100	0/20

TABLE 8 . Toxicity results from *Pimephales promelas* definitive tests (cont'd).

Sample	Conc.	Survival	LC50(%)	Limits
SW-17O	cont	20/20	7.18	4.33-11.91
	6.25	11/20		
	12.5	6/20		
	25	0/20		
	50	0/20		
	100	0/20		
SW-17I	cont	18/20	10.51	8.90-12.41
	6.25%	17/20		
	12.5%	5/20		
	25%	1/20		
	50%	0/20		
	100%	0/20		
SW-27A	cont	18/20	2.52	1.76-3.62
	0.375	15/20		
	0.75	14/20		
	1.5	14/20		

	3	9/20		
	6	0/20		
SW-27	cont	19/20	2.00	1.52-2.63
	0.375	18/20		
	0.75	16/20		
	1.5	12/20		
	3	8/20		
	6	0/20		

TABLE 8 . Toxicity results from *Pimephales promelas* definitive tests (cont'd).

Sample	Conc.	Survival	LC50(%)	Limits
SW-59	cont	20/20	>100	N/A
	25	20/20		
	50	20/20		
	100	20/20		
SW-36	cont	20/20	>100	N/A
	6.25	20/20		
	12.5	20/20		
	25	20/20		
	50	14/20		
	100	12/20		
SW-39	cont	20/20	93.30	70.66-123.2
	6.25	20/20		
	12.5	20/20		
	25	19/20		
	50	19/20		

	100	9/20		
SW-40	cont	19/20	71.95	59.86-86.48
	6.25	20/20		
	12.5	18/20		
	25	19/20		
	50	15/20		
	100	5/20		

TABLE 8 . Toxicity results from *Pimephales promelas* definitive tests (cont'd).

Sample	Conc.	Survival	LC50(%)	Limits
SW-43	cont	20/20	63.73	56.78-71.53
	6.25	20/20		
	12.5	20/20		
	25	18/20		
	50	19/20		
	100	0/20		
SW-48	cont	20/20	>100	N/A
	25	20/20		
	50	19/20		
	100	17/20		
SW-38	cont	20/20	70.71	63.23-79.08
	6.25	20/20		
	12.5	20/20		
	25	20/20		

	50	17/20		
	100	3/20		
SW-41	cont	20/20	33.41	29.93-37.28
	6.25	18/20		
	12.5	20/20		
	25	18/20		
	50	0/20		
	100	0/20		

TABLE 8 . Toxicity results from *Pimephales promelas* definitive tests (cont'd).

Sample	Conc.	Survival	LC50(%)	Limits
SW-44	cont	20/20	25.00	19.99-31.26
	6.25	19/20		
	12.5	15/20		
	25	14/20		
	50	1/20		
	100	0/20		
SW-46	cont	20/20	15.93	14.19-17.88
	3.125	20/20		
	6.25	17/20		
	12.5	20/20		
	25	0/20		
	50	0/20		
SW-47	cont	20/20	77.11	59.27-100.3

	6.25	20/20		
	12.5	19/20		
	25	20/20		
	50	15/20		
	100	7/20		
KCl	cont	18/20	682mg/l	636-731
	125	20/20		
	250	19/20		
	500	18/20		
	1000	0/20		
	2000	0/20		

TABLE 9. Survival and Growth of *H. azteca* sediment tests. 5/9/97

Sample	Surv.%	C.V.%	p value	\bar{X} Wt. (μ g)	C.V.%	p value
PS Control	85	12.7	N/A	0.136	19.2	N/A
SW-01	25	54.2	0.0004*	0.059	23.5	N/A
SW-02	47.5	20.2	0.002*	0.094	23.5	N/A
SW-03	37.5	31.7	0.001*	0.090	9.4	N/A
SW-04A	46.25	18.5	0.0013*	0.076	10.0	N/A
SW-05	1.25	200	N/A [^]	N/A	N/A	N/A
SW-07A	35	50.8	0.003*	0.097	19.2	N/A
SW-13	41.25	40.0	0.0044*	0.082	36.2	N/A
SW-21	23.75	52.6	0.0003*	0.059	47.2	N/A
SW-23	18.75	59.1	0.0009*	0.086	5.9	N/A
SW-26	55	42.6	0.0591	0.107	27.3	0.150
SW-28	56.25	23.4	0.0149*	0.128	14.4	N/A
SW-08A	45	24.0	0.0019*	0.102	8.4	N/A

* Denotes samples where survival or growth were determined to be statistically different from the control survival or growth, using a *t*-test, alpha = 0.05.

^ Survival data was analyzed using a Mann-Whitney Rank Sum test. Variability was such that statistical test could not provide useful data.

NOTE: For samples where the survival was determined to be statistically different from the control sample, no statistical analysis of the growth was attempted, since the value for the data would be suspect.

TABLE 10. Survival and Growth of *H. azteca* sediment tests. 5/23/97

Sample	Surv.%	C.V.%	p value	\bar{X} Wt. (μ g)	C.V.%	p value
PS Cont	90	12.0	N/A	0.219	14.6	N/A
SW-14	98.75	2.5	0.1655	0.193	9.5	0.1993
SW-15	73.75	18.7	0.1127	0.181	20.3	0.1661
SW-17I	6.25	101.0	<0.0001*	0.130	68.5	N/A
SW-17O	0	0	0.0286#	N/A	N/A	N/A
SW-25	77.5	15.4	0.1708	0.194	6.1	0.4712
SW-29	31.25	35.5	0.0003*	0.175	20.7	N/A
SW-36	76.25	3.3	0.114	0.161	8.7	0.0167*
SW-39	78.75	13.1	0.1825	0.211	8.2	0.6937
SW-40	73.75	3.4	0.0262*	0.192	7.8	0.1828
SW-43	72.5	21.4	0.114	0.194	11.6	0.0905
SW-48	66.25	7.2	0.007*	0.180	9.7	N/A

SW-49B	97.5	5.1	0.2544	0.282	6.8	N/A
--------	------	-----	--------	-------	-----	-----

* Denotes samples where survival or growth were determined to be statistically different from the control survival or growth, using a *t*-test, alpha = 0.05.

Denotes samples where survival or growth were determined to be statistically different from the control survival or growth, using a Mann-Whitney Rank Sum test, alpha = 0.05.

NOTE: For samples where the survival was determined to be statistically different from the control sample, no statistical analysis of the growth was attempted, since the value for the data would be suspect.

TABLE 11 . Initial routine chemistries for *P. promelas* and *C. dubia* toxicity tests.

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	0 hr	24 hr	0hr	24 hr	0hr	24hr	0 hr	24.0
Control	4/10	8.16	8.18	8.2	8.6	282	274	21.1	20.9
Control	4/11	8.18	8.16	8.6	8.6	287	278	21.3	21.2
Control	4/14	8.11	8.12	8.4	8.4	288	293	21.2	20.7
Control	4/15	8.12	7.83	8.4	8.5	293	306	21.7	19.3
SW-15	100	7.46	7.43	9.2	9.0	130	99	21.4	21.0
SW-28	100	7.64	7.58	9.9	9.6	326	318	20.6	21.9
SW-29	100	7.69	7.56	9.1	6.7	407	365	21.1	21.0
SW-08A	100	7.54	7.33	9.2	9.0	161	96	21.3	20.9
SW-35	100	7.56	7.63	8.8	6.4	283	175	21.1	21.1
SW-34	100	8.11	8.21	8.5	6.6	943	1008	21.1	21.0
SW-25A	100	7.22	7.88	9.2	9.8	128	140	20.4	21.6

SW-25	100	7.17	7.89	9.0	10.8	132	139	21.1	21.8
SW-49B	100	7.39	7.95	8.8	9.9	87	80	20.1	21.9
SW-01	1.56	7.71	8.05	8.2	8.5	292	291	21.3	21.0
SW-01	3.13	7.67	8.02	8.2	8.6	284	288	21.1	21.3
SW-01	6.25	7.72	8.04	8.2	8.6	282	289	21.0	21.1
SW-01	12.5	7.66	7.98	8.3	8.7	278	286	21.0	21.0
SW-01	25	7.60	8.02	8.4	8.9	275	282	20.9	20.9
SW-01	100	7.67	6.94	9.0	9.0	268	263	21.3	20.6

TABLE 11. Initial routine chemistries for *P. promelas* and *C. dubia* tests. (cont'd)

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	0 hr	24 hr	0hr	24 hr	0hr	24hr	0 hr	24.0
SW-02	6.25	N/A	7.57	N/A	8.6	N/A	304	22.0	21.1
SW-02	12.5	N/A	7.43	N/A	8.5	N/A	301	21.1	21.2
SW-02	25	N/A	7.37	N/A	8.4	N/A	299	19.6	20.5
SW-02	100	7.59	7.20	9.4	8.9	339	308	21.3	20.5
SW-03	3.13	7.55	7.81	8.4	8.4	297	300	21.6	19.3
SW-03	6.25	7.52	7.77	8.3	8.4	294	285	21.4	19.2
SW-03	12.5	7.63	7.73	8.5	8.5	291	273	21.4	19.2
SW-03	25	7.42	7.32	8.4	8.4	296	283	21.5	21.6
SW-03	50	7.41	7.53	8.5	8.5	312	286	21.5	21.5
SW-03	100	6.58	7.52	8.5	8.5	323	295	21.6	21.6
SW-04A	3.13	7.75	7.71	8.4	8.6	307	301	21.4	19.1

SW-04A	6.25	7.57	7.67	8.4	8.8	299	288	21.3	19.1
SW-04A	12.5	7.67	7.67	8.5	8.7	294	284	21.4	19.1
SW-04A	25	7.54	7.71	8.4	6.3	307	275	21.5	21.4
SW-04A	50	7.54	7.26	8.5	7.5	309	282	21.4	21.5
SW-04A	100	6.81	7.71	8.5	8.0	324	287	21.6	21.3
SW-05	3.13	7.53	7.79	8.4	8.6	302	309	22.0	19.7
SW-05	6.25	7.50	7.77	8.4	8.6	298	297	22.0	19.4
SW-05	12.5	7.54	7.75	8.5	8.7	295	289	21.6	19.4
SW-05	25	7.51	7.75	8.2	8.3	307	279	21.5	21.4
SW-05	50	7.48	7.76	8.1	8.5	311	279	21.7	21.3
SW-05	100	6.42	7.64	8.3	8.4	311	281	21.7	21.3

SW-02- Day 0 initial chemistries not recorded.

TABLE 11. Initial routine chemistries for *P. promelas* and *C. dubia* tests. (cont'd)

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	0 hr	24 hr	0hr	24 hr	0hr	24hr	0 hr	24 hr
SW-06	0.08	7.54	7.47	8.2	8.5	308	279	22.00	20.8
SW-06	0.16	7.46	7.65	8.3	8.5	310	280	21.80	21.0
SW-06	0.31	7.45	7.80	8.2	8.5	312	285	21.40	20.8
SW-06	0.63	7.42	7.81	8.3	8.5	321	293	21.3	21.0
SW-06	1.25	7.34	7.75	8.4	8.5	336	308	21.1	21.1
SW-06	2.5	7.16	7.49	8.4	8.4	363	336	21.2	21.0
SW-06	5	6.55	7.13	8.4	8.5	422	399	21.3	21.0
SW-07A	25	7.46	7.74	8.3	8.5	286	276	21.5	21.5
SW-07A	50	7.49	7.84	8.4	8.5	295	271	21.6	21.7
SW-07A	100	7.04	7.79	8.3	8.4	288	262	21.6	21.5
SW-12	0.08	7.34	7.61	8.1	8.4	286	280	21.6	20.8

SW-12	0.16	7.33	7.78	8.2	8.5	307	282	21.7	20.9
SW-12	0.31	7.39	7.90	8.1	8.5	314	286	21.4	20.8
SW-12	0.63	7.40	7.96	8.2	8.4	323	295	21.3	21.1
SW-12	1.25	7.38	7.96	8.3	8.4	340	313	21.2	21.0
SW-12	2.5	7.30	7.80	8.2	8.3	379	246	21.2	21.4
SW-12	5	7.13	7.58	8.3	8.4	448	409	21.2	21.3
SW-12	10	7.06	6.60	8.4	8.5	550	554	21.1	21.4
SW-12	20	6.01	5.33	8.4	8.8	727	792	21.1	21.3
SW-13	25	N/A	7.99	N/A	9.1	N/A	291	19.1	20.5
SW-13	50	N/A	7.87	N/A	9.5	N/A	279	19.9	20.0
SW-13	100	7.45	7.42	9.1	8.9	255	258	21.4	20.9

SW-13- Day 0 initials not recorded for 25% and 50% samples.

TABLE 11 . Initial routine chemistries for *P. promelas* and *C. dubia* tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	0 hr	24 hr	0hr	24 hr	0hr	24hr	0 hr	24 hr
SW-14	0.19	7.69	8.12	8.2	8.60	286	310	21.1	22.1
SW-14	0.38	7.63	8.11	8.2	8.60	280	300	21.0	21.9
SW-14	0.75	7.68	8.10	8.2	8.6	280	296	21.0	21.9
SW-14	1.5	7.65	8.07	8.2	8.5	281	289	20.9	21.9
SW-14	3	7.66	8.03	8.2	8.5	281	288	20.8	21.5
SW-14	6.25	7.59	8.00	8.2	8.5	303	277	21.5	21.1
SW-14	12.5	7.49	7.93	8.4	8.4	304	277	21.4	21.3
SW-14	25	7.41	7.95	8.4	8.5	303	273	21.4	21.6
SW-14	50	7.25	7.79	8.5	8.4	297	264	21.2	21.5
SW-14	100	5.15	6.82	8.5	8.6	287	259	21.3	21.4
SW-17O	0.19	8.18	8.10	8.7	8.4	300	259	20.8	22.4

SW-17O	0.38	8.11	8.06	8.6	8.4	295	282	20.7	22.5
SW-17O	0.75	8.05	8.01	8.7	8.4	296	290	20.9	22.5
SW-17O	1.5	7.95	7.90	8.8	8.5	300	295	20.7	22.4
SW-17O	3	7.80	7.76	8.8	8.5	312	305	20.9	22.3
SW-17O	6.25	7.45	7.24	8.1	8.5	349	326	22.0	20.6
SW-17O	12.5	7.18	7.31	8.2	8.5	374	372	21.9	20.5
SW-17O	25	6.54	6.72	8.3	8.6	489	460	21.6	20.5
SW-17O	50	4.61	4.73	8.5	8.4	667	635	21.4	20.4
SW-17O	100	3.55	3.65	8.4	8.5	1023	1064	21.5	20.5
SW-17I	0.19	8.04	8.06	8.9	8.3	275	269	21.7	22.2
SW-17I	0.38	8.01	8.05	8.8	8.3	281	282	21.7	22.1
SW-17I	0.75	7.99	8.03	8.7	8.4	284	290	21.6	22.1
SW-17I	1.5	7.93	7.94	8.8	8.5	289	295	21.6	21.9

TABLE 11. Initial routine chemistries for *P. promelas* and *C. dubia* tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	0 hr	24 hr	0hr	24 hr	0hr	24hr	0 hr	24 hr
SW-17I	3	7.82	7.80	8.8	8.5	297	304	21.6	22.0
SW-17I	6.25	7.44	7.74	8.1	8.5	333	337	22.1	21.1
SW-17I	12.5	7.30	7.68	8.2	8.5	366	362	22.1	21.1
SW-17I	25	6.57	7.31	8.3	8.5	444	427	21.9	21.1
SW-17I	50	5.14	5.54	8.3	8.5	554	568	21.7	21.3
SW-17I	100	3.40	3.35	8.4	8.5	954	988	21.8	21.3
SW-21	25	7.94	8.02	9.2	8.8	308	295	19.0	19.9
SW-21	50	7.83	7.79	9.9	9.3	322	291	19.0	18.3
SW-21	100	7.78	7.67	9.1	8.0	280	276	21.1	21.1
SW-23	12.5	8.01	8.09	8.7	8.7	295	291	19.1	21.3
SW-23	25	7.96	8.06	8.9	8.7	272	277	19.1	20.3

SW-23	50	7.87	7.95	9.9	9.2	282	260	19.0	19.0
SW-23	100	7.62	7.95	9.0	10.1	233	224	19.9	21.6
SW-26	6.25	7.88	7.72	8.5	8.8	286	283	21.5	19.1
SW-26	12.5	7.88	7.73	8.5	8.7	283	282	21.4	19.0
SW-26	25	7.46	7.84	8.9	8.9	276	264	21.2	21.4
SW-26	50	7.39	7.68	9.0	9.2	277	283	21.2	21.3
SW-26	100	7.02	7.44	8.8	9.8	272	281	20.9	21.6
SW-27	0.09	7.55	8.09	8.2	8.5	290	320	20.9	21.6
SW-27	0.19	7.95	8.01	8.3	8.6	294	312	21.0	21.5
SW-27	0.38	7.89	8.00	8.4	8.4	294	301	21.0	21.4
SW-27	0.75	7.87	8.00	8.4	8.5	294	300	20.9	21.6
SW-27	1.5	7.83	7.93	8.4	8.5	298	301	21.0	21.6
SW-27	3	7.71	7.94	8.3	8.5	304	306	21.1	21.1

TABLE 11. Initial routine chemistries for *P. promelas* and *C. dubia* tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	0 hr	24 hr	0hr	24 hr	0hr	24hr	0 hr	24 hr
SW-27	6.25	7.33	7.64	8.7	8.9	305	334	22.0	21.7
SW-27A	0.09	7.67	8.12	8.3	8.6	288	310	21.0	19.6
SW-27A	0.19	7.99	8.09	8.3	8.5	293	308	21.0	19.7
SW-27A	0.38	7.93	8.07	8.3	8.6	294	306	21.9	19.6
SW-27A	0.75	7.92	8.03	8.3	8.5	294	299	21.0	19.9
SW-27A	1.5	7.87	7.97	8.3	8.5	296	301	21.0	19.8
SW-27A	3	7.75	7.88	8.3	8.5	304	308	21.0	21.3
SW-27A	6.25	7.21	7.69	8.8	8.7	323	336	21.4	21.9
SW-36	1.56	7.96	7.83	8.5	8.6	290	272	24.5	19.0
SW-36	3.13	7.95	7.84	8.5	8.7	292	274	21.4	18.9

SW-36	6.25	N/A	7.94	N/A	8.4	N/A	295	N/A	22.2
SW-36	12.5	N/A	7.89	N/A	8.5	N/A	299	N/A	22.2
SW-36	25	N/A	7.81	N/A	8.6	N/A	308	N/A	21.9
SW-36	50	N/A	7.60	N/A	8.9	N/A	330	N/A	21.5
SW-36	100	N/A	7.11	N/A	9.4	N/A	376	N/A	20.7
SW-38	6.25	7.52	7.94	8.9	9.0	291	304	21.0	21.3
SW-38	12.5	7.52	7.88	9.0	9.0	303	316	21.0	21.3
SW-38	25	7.69	7.81	9.0	9.6	324	342	21.0	21.4
SW-38	50	7.54	7.62	8.9	10.4	367	418	21.0	21.3
SW-38	100	7.23	7.28	8.8	12.0	444	565	20.9	21.1

SW-36 - day 0 initial chemisrties not recorded.

TABLE 11. Initial routine chemistries for *P. promelas* and *C. dubia* tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	0 hr	24 hr	0hr	24 hr	0hr	24hr	0 hr	24 hr
SW-39	1.56	7.71	8.09	8.8	8.6	260	276	20.6	21.9
SW-39	3.13	7.72	8.07	9.0	8.6	281	291	20.5	21.7
SW-39	6.25	7.72	8.00	9.0	8.7	290	298	20.5	21.4
SW-39	12.5	7.58	7.88	9.0	8.8	300	309	20.5	21.5
SW-39	25	7.41	7.70	8.8	8.9	323	327	20.6	21.7
SW-39	50	7.21	7.48	9.0	9.2	365	364	21.7	21.7
SW-39	100	6.56	6.54	8.8	10.0	446	486	21.7	21.2
SW-40	6.25	7.81	7.74	8.8	8.4	288	301	21.7	22.2
SW-40	12.5	7.72	7.62	8.9	8.6	303	311	21.7	22.0

SW-40	25	7.56	7.34	9.0	8.7	325	334	21.8	22.0
SW-40	50	7.20	6.98	9.0	8.7	369	382	21.8	21.7
SW-40	100	6.73	6.21	9.0	9.0	463	468	21.9	21.8
SW-41	0.38	8.00	7.83	8.7	8.6	299	291	21.7	19.8
SW-41	0.75	7.96	7.74	8.6	8.6	300	292	21.7	19.9
SW-41	1.5	7.89	7.70	8.5	8.6	308	298	21.7	19.9
SW-41	3.13	7.71	7.38	8.8	8.3	322	323	21.0	22.1
SW-41	6.25	7.65	7.25	8.9	8.2	352	358	21.1	22.0
SW-41	12.5	7.47	6.98	8.6	8.3	426	441	21.1	21.6
SW-41	25	7.23	6.72	8.6	8.2	565	594	21.0	20.8
SW-41	50	6.75	6.39	8.8	7.9	827	8.62	20.9	24.3
SW-41	100	5.39	5.47	8.6	8.7	1296	1358	21.1	21.7

TABLE 11. Initial routine chemistries for *P. promelas* and *C. dubia* tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	0 hr	24 hr	0hr	24 hr	0hr	24hr	0 hr	24 hr
SW-43	3.13	7.20	7.92	8.7	8.9	271	293	21.3	21.8
SW-43	6.25	7.19	7.83	8.8	9.0	291	302	21.6	21.7
SW-43	12.5	7.14	7.63	8.8	9.0	302	316	21.5	21.6
SW-43	25	7.05	7.35	8.9	9.2	330	341	21.7	21.5
SW-43	50	6.89	7.02	9.0	9.2	381	391	21.6	21.3
SW-43	100	5.99	6.18	8.6	9.3	484	494	21.7	21.1
SW-44	0.19	8.01	7.39	8.2	9.0	273	324	21.3	20.8
SW-44	0.38	7.97	7.67	8.2	8.8	286	332	21.3	20.5

SW-44	0.75	7.96	7.79	8.2	8.7	293	317	21.1	20.5
SW-44	1.5	7.98	7.71	8.3	8.7	307	362	21.0	20.6
SW-44	3	7.92	7.85	8.3	8.6	334	331	21.1	20.7
SW-44	6.25	7.66	7.88	8.7	8.9	367	378	20.3	21.0
SW-44	12.5	7.56	7.69	8.8	8.9	457	499	20.2	21.1
SW-44	25	7.44	7.50	8.9	9.4	647	709	20.3	21.0
SW-44	50	7.29	7.30	9.0	9.7	1045	1178	20.3	20.8
SW-44	100	5.63	5.82	9.2	10.6	1772	2180	20.1	21.0
SW-46	1.56	7.39	7.40	8.8	8.2	318	320	19.6	22.0
SW-46	3.13	7.32	7.15	8.9	8.1	349	351	20.4	22.0
SW-46	6.25	7.06	6.77	8.9	7.7	405	383	20.5	22.0
SW-46	12.5	6.68	6.23	8.7	6.9	510	536	20.6	22.0
SW-46	25	5.81	5.65	8.3	6.9	732	781	20.7	21.8
SE-46	50	5.05	5.28	8.0	7.6	1202	1218	21.1	21.6

TABLE 11. Initial routine chemistries for *P. promelas* and *C. dubia* tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	0 hr	24 hr	0hr	24 hr	0hr	24hr	0 hr	24 hr
SW-47	25	7.51	7.93	9.0	8.9	275	278	21.0	21.2
SW-47	50	7.45	7.84	9.2	9.4	266	266	20.8	21.1
SW-47	100	7.20	7.66	9.4	10.2	248	252	20.7	21.0
SW-48	25	7.44	7.79	9.0	8.5	260	259	21.5	21.4
SW-48	50	7.36	7.70	9.1	8.9	233	229	20.6	21.3
SW-48	100	6.97	7.35	9.2	9.5	178	163	20.8	21.1
SW-59	25	7.89	7.96	9.1	8.6	251	249	20.7	21.9

SW-59	50	7.82	7.89	9.3	8.9	215	202	20.4	21.9
SW-59	100	7.83	7.67	9.8	9.5	136	117	20.0	21.9
KCl	62.5	7.80	7.80	8.5	8.8	405	384	21.7	19.5
KCl	125	7.92	7.83	8.3	8.7	495	492	22.1	19.6
KCl	250	7.89	7.88	8.4	8.8	692	680	22.0	19.6
KCl	500	7.99	7.89	8.3	8.8	1088	1063	22.0	19.7
KCl	1000	8.03	7.94	8.4	8.6	1879	1846	21.9	19.3
KCl	2000	8.04	8.02	8.2	8.5	3080	3490	20.2	21.2

TABLE 12 . Final routine chemistries from *C. dubia* toxicity tests.

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	24 hr	48 hr						
Control		8.11	8.11	8.6	8.5	268	247	20.8	21.0
SW-15	100	7.88	7.82	8.8	8.7	152	141	20.7	21.2
SW-08A	100	7.85	7.85	8.6	8.7	122	165	20.8	21.0
Control		8.12	8.23	8.8	8.6	275	315	19.3	19.4
SW-28	100	7.95	7.97	8.9	8.8	304	336	19.2	19.0
Control		8.13	8.00	8.9	8.2	288	276	20.9	21.0

SW-29	100	7.99	7.89	8.9	8.2	359	372	21.4	21.0
SW-35	100	7.91	7.93	9.0	8.3	262	286	21.4	20.9
SW-34	100	8.32	8.30	8.9	8.3	879	1026	21.3	21.0
Control		8.13	8.14	8.6	8.9	278	317	19.5	19.4
SW-25A	100	7.98	7.99	8.7	8.9	154	131	19.2	19.4
SW-25	100	8.00	8.01	8.9	8.9	140	139	19.4	19.4
SW-49B	100	7.70	7.80	8.7	8.9	105	122	19.3	19.4
SW-01	control	8.08	7.98	8.5	8.3	305	302	20.6	20.9
SW-01	1.56	8.10	7.99	8.5	8.2	299	298	20.5	21.0
SW-01	3.13	8.09	8.01	8.5	8.2	301	292	20.9	20.9
SW-01	6.25	8.08	7.99	8.6	8.3	291	290	21.0	20.9
SW-01	12.5	8.06	7.98	8.5	8.3	288	284	20.8	20.8
SW-01	25	8.04	7.96	8.5	8.3	284	279	20.8	20.9

TABLE 12. Final routine chemistries from *C. dubia* toxicity tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	24 hr	48 hr						
SW-02	CNT	8.08	7.98	8.5	8.4	310	294	21.2	20.6
SW-02	6.25	8.09	7.99	8.6	8.3	299	291	20.7	20.7
SW-02	12.5	8.10	7.98	8.7	8.3	298	290	20.6	20.6
SW-02	25	8.05	7.93	8.6	8.3	299	285	20.7	20.6
SW-03	CNT	7.93	8.03	8.4	8.0	294	298	19.9	20.5
SW-03	3.13	7.90	8.03	8.4	8.1	292	296	20.0	20.6
SW-03	6.25	7.90	8.05	8.3	8.2	288	288	20.0	20.5

SW-03	12.5	7.89	8.01	8.1	8.1	285	274	20.1	20.5
SW-03	25	8.00	7.90	8.8	8.3	287	279	21.2	20.7
SW-03	50	7.95	7.88	8.7	8.4	293	285	21.0	20.7
SW-03	100	7.76	7.79	8.9	8.4	300	293	21.3	20.7
SW-04A	CNT	7.81	7.88	8.3	8.1	300	297	20.0	20.8
SW-04A	3.13	7.79	8.02	8.4	8.2	298	284	20.0	20.9
SW-04A	6.25	7.79	8.06	8.3	8.1	293	274	20.0	20.8
SW-04A	12.5	7.80	8.05	8.3	8.2	291	269	20.1	20.8
SW-04A	25	7.87	8.08	8.6	8.6	291	288	20.9	21.0
SW-04A	50	7.84	8.04	8.7	8.6	297	297	20.9	20.8
SW-04A	100	7.74	N/A	8.9	N/A	305	N/A	21.2	N/A
SW-05	CNT	7.98	7.99	8.4	8.0	300	291	20.1	21.1
SW-05	3.13	7.95	8.04	8.4	8.0	297	287	20.1	21.6
SW-05	6.25	7.94	8.06	8.3	8.0	293	278	20.1	21.3
SW-05	12.5	7.93	8.06	8.3	8.0	287	270	20.3	21.5
SW-05	25	8.07	7.75	8.9	8.3	291	281	21.0	20.7
SW-05	50	8.02	7.74	9.1	8.3	300	278	20.8	20.6
SW-05	100	7.88	N/A	9.3	N/A	306	N/A	20.8	N/A

TABLE 12. Final routine chemistries from *C. dubia* toxicity tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	24 hr	48 hr						
SW-06	CNT	8.19	7.99	8.5	8.1	305	274	20.4	20.9
SW-06	0.08	8.12	8.02	8.3	8.2	299	278	20.6	20.9
SW-06	0.16	8.08	8.02	8.3	8.3	296	281	20.5	20.9
SW-06	0.31	8.07	8.05	8.4	8.3	298	286	20.4	20.9
SW-06	0.63	8.03	8.01	8.5	8.3	303	293	20.3	21.0

SW-06	1.25	7.99	7.94	8.7	8.2	315	310	19.8	20.0
SW-07A	CNT	8.10	8.14	8.8	8.6	303	275	21.3	21.0
SW-07A	25	8.06	8.09	8.7	8.7	297	286	21.3	21.0
SW-07A	50	8.04	8.05	9.0	8.7	290	289	21.7	21.0
SW-07A	100	7.93	7.97	9.1	8.8	281	278	21.6	20.9
SW-12	CNT	8.21	8.06	8.2	8.1	304	276	20.9	20.5
SW-12	0.08	8.16	8.06	8.2	8.2	299	281	20.9	20.6
SW-12	0.16	8.13	8.06	8.5	8.1	297	282	20.7	20.4
SW-12	0.31	8.11	8.06	8.5	8.2	301	284	20.6	20.3
SW-12	0.63	8.07	8.06	8.4	8.3	313	296	20.9	20.1
SW-12	1.25	8.08	N/A	8.3	N/A	326	N/A	20.7	20.0
SW-13	CNT	8.11	8.11	8.6	8.5	268	247	20.8	21.0
SW-13	12.5	8.08	7.98	8.5	8.4	310	294	21.2	20.6
SW-13	25	8.10	7.97	8.5	8.2	291	292	20.8	20.6
SW-13	50	8.03	7.93	8.5	8.5	283	281	20.7	20.6
SW-13	100	7.88	7.93	8.7	8.7	217	214	20.8	21.1

TABLE 12. Final routine chemistries from *C. dubia* toxicity tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	24 hr	48 hr						
SW-14	CNT	8.14	8.02	8.6	8.30	320	308	20.8	20.9
SW-14	0.19	8.13	8.04	8.5	8.40	305	306	20.8	20.6
SW-14	0.38	8.10	8.04	8.6	8.40	300	303	20.7	20.4
SW-14	0.75	8.12	8.04	8.5	8.4	300	301	20.8	20.5

SW-14	1.5	8.09	8.04	8.5	8.4	300	291	20.7	20.6
SW-14	3	8.09	8.03	8.6	8.5	299	284	20.8	20.6
SW-14	6.25	8.08	8.05	8.6	8.2	278	279	21.1	21.0
SW-17O	CNT	8.14	8.25	8.7	8.9	251	320	19.0	19.0
SW-17O	0.19	8.11	8.18	8.8	8.9	278	312	19.7	18.9
SW-17O	0.38	8.10	8.10	8.9	8.9	289	310	19.6	18.8
SW-17O	0.75	8.10	8.13	9.1	8.9	293	310	19.7	18.8
SW-17O	1.5	8.09	8.15	9.1	8.9	299	320	19.8	18.9
SW-17O	3	8.05	N/A	9.1	N/A	310	N/A	19.8	N/A
SW-17I	CNT	8.12	8.29	8.7	8.8	283	318	19.1	19.0
SW-17I	0.19	8.12	8.17	8.8	8.8	285	312	19.1	18.9
SW-17I	0.38	8.11	8.17	8.8	8.9	287	308	19.0	19.0
SW-17I	0.75	8.11	8.16	8.9	8.8	291	313	18.9	19.2
SW-17I	1.5	8.10	8.14	8.9	8.8	297	317	19.0	19.0
SW-17I	3	8.09	N/A	9.0	N/A	302	N/A	19.1	N/A
SW-21	CNT	8.10	7.98	8.6	8.4	314	294	21.0	20.6
SW-21	25	8.09	7.97	8.6	8.2	298	283	20.9	20.8
SW-21	50	8.06	7.95	8.6	8.3	298	283	20.9	20.7
SW-21	100	8.02	7.93	8.9	8.3	297	289	21.2	21.0

TABLE 12. Final routine chemistries from *C. dubia* toxicity tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	24 hr	48 hr						
SW-23	CNT	8.13	8.14	8.6	8.9	278	317	19.5	19.4
SW-23	12.5	8.11	7.96	8.6	8.4	298	295	20.8	20.6
SW-23	25	8.07	7.96	8.5	8.4	283	282	20.8	20.6

SW-23	50	8.05	7.93	8.6	8.3	265	260	20.8	20.6
SW-23	100	7.96	7.93	8.7	9.0	222	230	19.3	19.3
SW-26	CNT	8.04	8.21	8.9	8.9	269	320	18.8	19.0
SW-26	6.25	7.82	8.06	8.4	8.3	284	267	20.1	20.8
SW-26	12.5	7.79	8.05	8.5	8.3	281	267	20.0	20.9
SW-26	25	7.93	8.08	9.1	8.9	286	308	19.6	19.0
SW-26	50	7.87	8.00	9.2	8.9	287	302	19.7	19.1
SW-26	100	7.71	7.85	9.3	8.9	285	287	19.0	18.9
SW-27	CNT	8.11	8.02	8.5	8.4	314	306	21.1	20.5
SW-27	0.09	8.10	8.01	8.5	8.4	313	307	21.0	20.5
SW-27	0.19	8.07	7.99	8.6	8.4	307	296	20.8	20.6
SW-27	0.38	8.06	7.98	8.6	8.4	306	299	21.0	20.6
SW-27	0.75	8.05	7.95	8.6	8.5	307	298	21.0	20.5
SW-27	1.5	7.99	7.90	8.6	8.5	310	301	21.0	20.4
SW-27A	CNT	7.99	7.97	8.5	8.3	314	296	20.5	20.7
SW-27A	0.09	8.05	7.99	8.5	8.3	300	297	20.8	20.7
SW-27A	0.19	7.90	7.99	8.5	8.4	297	294	20.9	20.6
SW-27A	0.38	7.94	7.98	8.5	8.4	299	291	21.0	20.7
SW-27A	0.75	7.94	7.96	8.5	8.5	301	294	21.0	20.8
SW-27A	1.5	7.91	7.95	8.6	8.4	308	293	21.1	20.6

TABLE 12. Final routine chemistries from *C. dubia* toxicity tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	24 hr	48 hr						
SW-36	CNT	8.16	7.34	8.7	9.0	252	314	18.9	19.5
SW-36	1.56	7.94	8.05	8.3	8.1	283	278	20.0	20.5

SW-36	3.13	7.94	8.06	8.3	8.1	283	276	19.9	20.5
SW-36	6.25	8.10	7.70	8.8	9.0	286	318	19.1	19.4
SW-36	12.5	8.06	7.83	8.9	8.9	298	322	19.0	19.3
SW-36	25	8.01	7.85	8.9	8.9	312	335	19.0	19.3
SW-38	CNT	8.16	8.18	8.4	8.8	257	324	19.3	19.7
SW-38	6.25	8.11	8.11	8.5	8.8	298	323	19.1	19.5
SW-38	12.5	8.07	8.02	8.6	8.9	308	332	19.1	19.4
SW-38	25	8.03	N/A	8.6	N/A	326	N/A	19.0	N/A
SW-38	50	7.90	N/A	8.7	N/A	361	N/A	19.0	N/A
SW-38	100	7.63	N/A	8.7	N/A	440	N/A	19.0	N/A
SW-39	CNT	8.01	8.28	8.7	8.9	295	323	19.2	19.1
SW-39	1.56	7.96	8.16	8.8	8.1	299	306	19.1	19.0
SW-39	3.13	7.90	8.10	9.0	8.9	309	311	19.1	18.9
SW-39	6.25	7.84	8.06	9.0	8.9	327	326	19.1	18.9
SW-39	12.5	7.68	8.01	9.1	8.9	364	339	19.1	19.0
SW-39	25	7.38	N/A	9.0	N/A	432	N/A	19.1	N/A
SW-40	CNT	8.11	7.63	8.7	8.9	268	317	18.9	19.4
SW-40	6.25	8.09	7.77	8.8	8.9	285	327	18.6	19.3
SW-40	12.5	8.06	7.94	8.9	8.9	299	333	18.5	19.3
SW-40	25	8.00	7.88	8.9	8.8	320	357	18.5	19.4
SW-40	50	7.87	7.74	8.9	8.8	354	405	18.5	19.2
SW-40	100	7.41	N/A	9.0	N/A	423	N/A	18.7	N/A

TABLE 12. Final routine chemistries from *C. dubia* toxicity tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp.	(°C)
s x s	(%)	24 hr	48 hr						
SW-41	CNT	8.06	8.12	8.6	8.8	191	380	18.4	19.5
SW-41	0.38	7.97	8.04	8.4	8.3	305	286	20.1	20.5

SW-41	0.75	7.95	8.06	8.4	8.3	298	294	20.1	20.5
SW-41	1.5	7.96	8.06	8.3	8.2	305	275	20.1	20.6
SW-41	3.13	7.98	8.09	8.7	8.9	302	360	18.4	19.3
SW-41	6.25	7.94	8.00	8.7	9.0	334	395	18.3	19.3
SW-43	CNT	8.11	8.22	8.7	8.8	278	316	18.8	19.3
SW-43	0.78	7.99	8.10	8.4	8.2	291	276	20.2	20.7
SW-43	1.56	7.99	8.10	8.4	8.4	289	295	20.2	20.6
SW-43	3.13	8.04	8.16	8.7	8.9	289	316	18.6	19.1
SW-43	6.25	8.02	8.12	8.8	8.8	297	320	18.7	19.1
SW-43	12.5	7.99	8.07	9.0	8.8	307	329	18.6	19.0
SW-44	CNT	8.12	8.03	8.6	8.5	315	306	20.7	20.6
SW-44	0.19	8.14	8.03	8.7	8.5	304	304	20.8	20.6
SW-44	0.38	8.13	8.03	8.6	8.5	304	302	20.8	20.6
SW-44	0.75	8.13	8.03	8.6	8.5	313	306	20.6	20.5
SW-44	1.5	8.11	8.02	8.6	8.5	326	314	20.6	20.5
SW-44	3	8.11	7.99	8.6	8.5	351	340	20.8	20.5
SW-46	CNT	8.10	8.22	8.6	8.7	249	315	18.9	19.2
SW-46	1.56	8.05	8.04	8.7	8.9	303	342	19.0	18.8
SW-46	3.13	8.01	7.94	8.8	8.8	335	372	18.9	18.8
SW-46	6.25	7.94	7.81	8.9	8.7	383	432	18.9	19.7
SW-46	12.5	7.86	7.48	8.9	8.8	472	551	19.0	19.6
SW-46	25	6.36	N/A	8.9	N/A	660	N/A	19.1	N/A

TABLE 12. Final routine chemistries from *C. dubia* toxicity tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
s x s	(%)	24 hr	48 hr						
SW-47	CNT	8.14	8.25	8.9	8.8	249	320	19.3	19.5

SW-47	6.25	8.04	8.15	9.0	8.6	276	308	19.2	19.0
SW-47	12.5	8.04	8.06	9.0	8.7	281	303	19.2	18.8
SW-47	25	8.00	8.09	8.9	8.7	278	296	19.1	18.9
SW-47	50	7.93	7.91	9.0	8.8	269	282	19.3	18.9
SW-47	100	7.79	N/A	9.0	N/A	253	N/A	19.4	N/A
SW-48	CNT	8.14	8.17	8.7	8.8	225	331	18.7	19.1
SW-48	25	8.09	8.09	8.8	8.8	264	289	18.6	19.1
SW-48	50	7.97	7.90	8.9	8.8	244	254	18.6	19.0
SW-48	100	7.81	7.68	8.9	8.8	192	191	18.6	19.3
SW-59	CNT	8.12	8.23	8.8	8.6	275	315	19.3	19.4
SW-59	25	8.07	8.17	8.9	8.7	256	269	19.2	19.2
SW-59	50	8.05	8.14	9.0	8.7	225	224	19.1	19.0
SW-59	100	8.00	8.07	9.0	8.8	165	133	19.2	19.1
KCl	CNT	7.69	7.97	8.4	8.1	292	283	20.2	20.4
KCl	62.5	7.72	8.03	8.3	8.2	390	372	20.2	20.5
KCl	125	7.77	8.05	8.3	8.2	475	470	20.1	20.5
KCl	250	7.82	8.03	8.3	8.3	655	651	20.1	20.6
KCl	500	7.87	8.07	8.3	8.2	1030	1003	20.1	20.6
KCl	1000	7.93	N/A	8.2	N/A	1789	N/A	20.1	N/A

TABLE 13. Final routine chemistries from *P. promelas* toxicity tests.

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	24 hr	48 hr						
Control	prof	8.07	8.08	8.8	8.5	250	265	20.1	20.5

SW-01	100	7.89	7.85	8.9	8.6	259	269	20.6	20.6
SW-02	100	7.84	7.80	9.0	8.6	334	309	20.6	20.7
SW-08A	100	7.83	7.73	9.0	8.6	158	155	20.5	20.7
SW-13	100	7.87	7.83	9.0	8.6	258	250	20.5	20.6
SW-15	100	7.85	7.71	9.0	8.7	160	131	20.4	20.5
Control	prof	8.08	8.08	8.9	8.5	285	271	20.3	20.6
SW-21	100	7.95	7.95	9.0	8.6	326	292	20.2	20.5
SW-29	100	8.00	7.92	9.1	8.6	421	376	20.2	20.6
SW-34	100	8.33	8.34	9.2	8.6	937	971	20.2	20.5
SW-35	100	7.91	7.80	9.1	8.6	345	310	20.0	20.6
Control	prof	7.89	8.16	8.4	8.6	287	285	19.0	19.5
SW-49B	100	7.48	7.75	8.4	8.5	78	76	19.1	19.2
SW-23	100	7.74	8.00	8.4	8.6	223	224	19.1	19.2
SW-25A	100	7.76	8.06	8.4	8.6	125	122	19.2	19.3
SW-28	100	7.80	8.02	8.4	8.6	327	327	19.2	19.4
SW-25	100	7.83	8.10	8.4	8.7	133	133	19.3	19.3
SW-03	CNT	8.03	8.07	8.9	8.5	247	266	20.3	20.5
SW-03	25	7.96	7.98	8.9	8.6	292	289	20.2	20.5
SW-03	50	7.93	7.92	9.0	8.8	303	295	20.4	20.5
SW-03	100	7.85	7.82	9.0	8.7	321	306	20.2	20.5

TABLE 13. Final routine chemistries from *P. promelas* toxicity tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
sxs	(%)	24 hr	48 hr						

SW-04A	CNT	8.04	8.06	8.7	8.6	262	259	20.2	20.6
SW-04A	25	7.99	7.92	8.8	8.7	300	294	20.2	20.5
SW-04A	50	7.93	7.99	9.0	8.8	312	298	20.1	20.2
SW-04A	100	7.83	7.82	9.0	8.7	318	307	20.1	20.4
SW-05	CNT	8.07	8.09	8.9	8.5	318	275	20.3	20.7
SW-05	25	8.00	8.00	8.9	8.6	317	292	20.3	20.5
SW-05	50	7.93	7.94	9.0	8.7	312	292	20.5	20.5
SW-05	100	7.82	7.81	9.0	8.7	309	294	20.3	20.5
SW-06	CNT	8.11	8.05	8.6	8.5	289	277	20.0	20.8
SW-06	0.31	8.06	8.02	8.8	8.6	311	298	20.3	20.9
SW-06	0.62	8.04	7.97	8.9	8.7	319	303	20.3	20.7
SW-06	1.25	8.01	7.95	8.9	8.7	338	326	20.3	20.8
SW-06	2.5	7.94	7.89	8.8	8.8	367	357	20.4	20.8
SW-06	5	7.80	7.64	8.9	8.9	417	401	20.4	20.7
SW-07A	CNT	8.06	8.10	8.8	8.7	284	305	20.3	20.4
SW-07A	25	8.01	8.04	8.9	8.8	300	306	20.3	20.5
SW-07A	50	7.96	8.00	8.7	8.8	304	299	20.1	20.5
SW-07A	100	7.86	7.87	8.7	8.7	287	285	20.3	20.6
SW-12	CNT	8.07	8.03	8.7	8.4	309	257	20.8	21.0
SW-12	1.25	7.87	7.99	8.9	8.5	444	318	20.6	20.9
SW-12	2.5	7.98	7.95	8.9	8.6	362	349	20.7	20.9
SW-12	5	7.94	7.85	8.9	8.7	380	405	20.8	20.9
SW-12	10	7.66	7.74	8.4	8.7	522	549	19.9	19.4
SW-12	20	7.11	6.62	8.5	8.8	742	785	19.5	19.3

TABLE 13. Final routine chemistries from *P. promelas* toxicity tests (cont'd).

	conc	pH	(SU)	D.O.	(ppm)	Cond	(µS)	Temp	(°C)
s x s	(%)	24 hr	48 hr						

SW-14	CNT	8.12	8.05	8.6	8.4	297	264	20.9	20.9
SW-14	6.25	7.96	8.01	8.7	8.5	300	283	20.8	21.0
SW-14	12.5	7.95	7.97	8.8	8.6	297	285	20.8	20.7
SW-14	25	7.88	7.92	8.8	8.6	298	284	20.7	20.8
SW-14	50	7.72	7.77	8.8	8.7	292	278	20.7	20.6
SW-14	100	5.15	N/A	8.9	N/A	281	N/A	20.8	N/A
SW-17O	CNT	8.15	8.07	8.9	8.4	254	279	21.3	20.7
SW-17O	6.25	8.03	7.96	9.1	8.5	344	322	21.1	20.8
SW-17O	12.5	7.88	7.83	8.8	8.6	398	370	21.0	20.8
SW-17O	25	7.60	N/A	9.0	N/A	485	N/A	21.2	N/A
SW-17O	50	4.81	N/A	9.2	N/A	659	N/A	21.3	N/A
SW-17O	100	3.67	N/A	9.4	N/A	1034	N/A	21.4	N/A
SW-17I	CNT	8.07	8.06	8.9	8.3	279	272	20.2	20.8
SW-17I	6.25	8.00	7.97	9.0	8.3	337	311	20.4	20.7
SW-17I	12.5	7.93	7.89	9.2	8.2	378	332	20.1	20.7
SW-17I	25	7.76	7.74	9.2	8.4	451	410	20.1	20.7
SW-17I	50	6.30	N/A	9.3	N/A	575	N/A	20.0	N/A
SW-17I	100	3.58	N/A	9.3	N/A	926	N/A	20.2	N/A
SW-26	CNT	8.18	8.14	8.4	8.8	280	279	19.4	19.6
SW-26	25	7.85	8.08	8.4	8.8	274	278	19.6	19.1
SW-26	50	7.83	8.04	8.4	8.7	275	280	19.5	19.2
SW-26	100	7.71	7.94	8.4	8.7	270	280	19.4	19.1

TABLE 13. Final routine chemistries from *P. promelas* toxicity tests (cont'd).

	conc	pH	(SU)	DO	(ppm)	Cond	(µS)	Temp	(°C)
s x s	(%)	24 hr	48 hr						

SW-27	CNT	7.86	7.98	8.4	8.2	342	308	21.0	20.5
SW-27	0.38	7.96	7.95	8.4	8.3	325	305	20.9	20.5
SW-27	0.75	7.96	7.98	8.5	8.2	323	302	20.9	20.4
SW-27	1.5	7.98	7.90	8.7	8.2	327	306	20.9	20.5
SW-27	3	7.94	7.89	8.6	8.3	337	308	20.9	20.6
SW-27A	CNT	7.99	8.01	8.3	8.2	323	304	20.4	20.3
SW-27A	0.38	7.93	7.93	8.4	8.1	318	295	20.3	20.4
SW-27A	0.75	7.93	7.86	8.4	8.1	317	294	20.3	20.2
SW-27A	1.5	7.91	7.97	8.4	8.1	319	296	20.3	20.3
SW-27A	3	7.93	7.86	8.6	8.0	324	302	20.4	20.3
SW-27A	6	7.91	N/A	8.6	N/A	280	N/A	19.0	N/A
SW-36	CNT	7.99	8.04	8.4	9.1	282	292	19.5	19.1
SW-36	6.25	7.95	8.02	8.6	9.0	298	299	19.4	19.0
SW-36	12.5	7.91	7.98	8.7	8.9	308	309	19.3	19.2
SW-36	25	7.80	7.95	8.7	9.0	319	329	19.2	19.2
SW-36	50	7.68	7.84	8.8	9.1	343	347	19.4	19.1
SW-36	100	7.46	7.48	8.8	9.2	389	398	19.5	19.0
SW-38	CNT	8.05	7.89	8.6	9.0	286	291	19.4	19.1
SW-38	6.25	7.98	7.85	8.7	9.1	303	303	19.5	19.0
SW-38	12.5	7.94	7.86	8.7	9.1	315	314	19.4	18.9
SW-38	25	7.89	7.82	8.8	9.0	339	334	19.4	18.8
SW-38	50	7.77	7.72	8.8	9.0	379	389	19.5	19.0
SW-38	100	7.55	7.43	8.8	9.2	444	479	19.4	19.1

TABLE 13. Final routine chemistries from *P. promelas* toxicity tests (cont'd).

	conc	pH	(SU)	DO	(ppm)	Cond	(µS)	Temp	(°C)
s x s	(%)	24 hr	48 hr						
SW-39	CNT	8.07	8.10	8.3	8.8	253	280	19.4	19.0
SW-39	6.25	8.00	8.09	8.6	9.0	288	304	19.5	19.1
SW-39	12.5	7.96	8.05	8.7	9.0	312	320	19.4	19.2
SW-39	25	7.91	7.99	8.8	9.0	337	341	19.3	19.1
SW-39	50	7.74	7.81	8.8	8.9	373	387	19.3	19.0
SW-39	100	7.34	7.04	8.8	8.8	450	477	19.4	19.1
SW-40	CNT	8.17	8.13	8.9	8.8	278	280	19.1	19.0
SW-40	6.25	8.14	8.08	9.0	8.8	305	292	19.3	18.9
SW-40	12.5	8.13	8.04	9.1	8.8	331	305	19.4	19.1
SW-40	25	8.10	7.99	9.1	8.8	354	337	19.5	19.0
SW-40	50	8.04	7.84	9.1	8.9	400	377	19.5	19.1
SW-40	100	7.82	7.19	9.1	8.9	483	467	19.4	18.9
SW-41	CNT	8.20	8.14	8.4	8.6	285	289	19.0	19.2
SW-41	6.25	8.10	8.04	8.5	8.6	359	365	18.9	19.3
SW-41	12.5	8.02	7.98	8.3	8.6	437	445	18.9	19.2
SW-41	25	7.83	7.79	8.3	8.6	578	588	19.0	19.3
SW-41	50	6.90	6.84	8.2	8.5	857	853	19.0	19.4
SW-41	100	4.61	N/A	8.5	N/A	1362	N/A	18.9	N/A
SW-43	CNT	7.65	8.16	8.4	8.5	276	286	19.4	19.4
SW-43	6.25	7.67	8.10	8.4	8.5	284	299	19.6	19.5
SW-43	12.5	7.68	8.09	8.5	8.6	297	312	19.5	19.6
SW-43	25	7.66	8.01	8.5	8.4	328	337	19.6	19.4
SW-43	50	7.46	7.82	8.5	8.5	380	390	19.5	19.5
SW-43	100	6.55	6.98	8.5	8.6	492	498	19.4	19.3

TABLE 13. Final routine chemistries from *P. promelas* toxicity tests (cont'd).

	conc	pH	(SU)	DO	(ppm)	Cond	(µS)	Temp	(°C)
s x s	(%)	24 hr	48 hr						
SW-44	CNT	7.71	8.14	8.3	8.7	280	284	19.4	19.3
SW-44	6.25	7.72	8.08	8.4	8.6	375	382	19.5	19.4
SW-44	12.5	7.70	8.02	8.4	8.5	472	488	19.4	19.4
SW-44	25	7.59	7.94	8.4	8.5	669	694	19.4	19.3
SW-44	50	7.49	7.77	8.4	8.6	1062	1088	19.5	19.3
SW-44	100	6.14	N/A	8.4	N/A	1845	N/A	19.4	N/A
SW-46	CNT	8.06	8.18	8.5	8.8	281	283	19.1	19.0
SW-46	3.13	7.95	8.06	8.5	8.7	339	345	19.0	19.1
SW-46	6.25	7.85	7.95	8.5	8.7	403	412	19.0	19.2
SW-46	12.5	7.59	7.62	8.5	8.7	507	528	19.1	19.1
SW-46	25	5.13	N/A	8.4	N/A	738	N/A	19.1	N/A
SE-46	50	4.57	N/A	8.4	N/A	1178	N/A	19.0	N/A
SW-47	CNT	8.00	8.14	8.4	8.8	282	284	19.1	19.1
SW-47	6.25	7.97	8.12	8.5	8.8	283	281	19.2	19.0
SW-47	12.5	7.96	8.09	8.4	8.8	286	285	19.1	19.2
SW-47	25	7.92	8.08	8.4	8.9	285	283	19.2	19.1
SW-47	50	7.89	8.02	8.5	8.9	274	269	19.1	19.0
SW-47	100	7.77	7.95	8.4	8.8	242	246	19.1	19.2
SW-48	CNT	8.07	8.10	8.6	8.6	232	279	19.4	19.3
SW-48	25	7.96	8.00	8.8	8.7	260	253	19.5	19.3
SW-48	50	7.89	7.97	8.8	8.7	249	242	19.4	19.4
SW-48	100	7.72	7.71	8.9	8.7	202	171	19.3	19.3

TABLE 13. Final routine chemistries from *P. promelas* toxicity tests (cont'd).

	conc	pH	(SU)	DO	(ppm)	Cond	(µS)	Temp	(°C)
s x s	(%)	24 hr	48 hr						
SW-59	CNT	7.88	8.18	8.4	8.5	280	288	19.6	19.2
SW-59	25	7.88	8.17	8.5	8.4	245	254	19.4	19.3
SW-59	50	7.90	8.14	8.4	8.6	206	210	19.7	19.0
SW-59	100	7.86	8.08	8.5	8.8	129	129	19.5	19.1
KCl	CNT	8.03	8.00	8.6	8.2	330	310	20.6	20.3
KCl	125	8.05	7.97	8.6	8.1	539	490	20.2	20.4
KCl	250	8.05	7.99	8.6	8.0	770	700	20.4	20.5
KCl	500	8.02	7.99	8.6	8.1	1179	1056	20.0	20.4
KCl	1000	8.02	8.05	8.6	8.1	2080	1806	20.2	20.4
KCl	2000	7.99	N/A	8.4	N/A	3750	N/A	20.4	N/A

TABLE 14. Initial and Final routine chemistries from 5/9/97 *H. azteca* sediment toxicity tests.

	Initial				Final			
	pH	DO	Cond	Temp	pH	DO	Cond	Temp
s x s	(SU)	(ppm)	(µS)	(°C)	(SU)	(ppm)	(µS)	(°C)
PS cont	8.03	8.5	404	22.7	7.34	4.0	406	22.5
SW-01	8.08	6.9	497	21.9	7.32	3.0	359	22.4
SW-02	7.96	7.5	380	23.2	7.41	3.1	380	22.3
SW-03	7.92	7.1	474	22.4	7.36	3.1	387	22.5
SW-04A	7.91	6.9	421	23.1	7.43	4.3	380	22.6
SW-05	7.50	8.2	480	22.3	7.07	3.2	386	22.4
SW-07A	7.98	7.5	443	22.6	7.53	2.6	397	22.6
SW-13	7.93	6.1	436	23.4	7.34	2.0	368	22.1
SW-21	7.96	6.4	449	22.0	7.40	2.1	397	22.2
SW-23	7.51	5.8	520	22.4	7.34	3.2	350	22.7
SW-26	7.70	7.3	397	22.3	7.59	5.9	343	22.6
SW-28	7.77	8.0	333	23.2	7.22	2.4	349	22.7
SW-08A	7.81	7.5	436	22.4	7.28	2.0	382	22.7

TABLE 15. Initial and Final routine chemistries from 5/23/97 *H. azteca* sediment toxicity tests.

	Initial				Final			
	pH	DO	Cond	Temp	pH	DO	Cond	Temp
s x s	(SU)	(ppm)	(µS)	(°C)	(SU)	(ppm)	(µS)	(°C)
PS cont	7.89	7.7	619	21.7	7.75	6.5	466	22.4
SW-14	7.26	7.6	368	21.5	7.28	5.8	403	22.5
SW-15	7.72	526	6.5	22.4	7.40	3.6	392	22.5
SW-17I	6.09	6.3	579	22.1	6.99	5.5	392	22.9
SW-17O	4.18	7.0	900	22.1	6.43	5.4	453	22.8
SW-25	7.90	5.2	450	22.4	7.53	4.1	381	23.3
SW-29	8.04	7.1	490	22.3	7.49	4.2	380	22.8
SW-36	7.67	7.4	445	22.2	7.61	6.9	397	22.6
SW-39	7.59	7.8	425	22.4	7.29	6.1	396	23.4
SW-40	7.54	7.6	438	21.8	7.28	6.2	393	22.9
SW-43	7.39	7.8	447	22.7	7.31	6.0	391	22.6
SW-48	7.74	7.6	436	22.4	7.55	6.2	401	23.8
SW-49	7.72	7.1	419	22.2	7.52	6.0	378	22.7